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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,674	12/04/2003	Toru Mizutani	09792909-5789	8467

7590 09/05/2006

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EXAMINER	
GOFF II, JOHN L	

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 09/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,674	MIZUTANI ET AL.	
	Examiner	Art Unit	
	John L. Goff	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14,26,27 and 29-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14,26,27 and 29-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/768,093.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 6/22/06.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 14, 26, 27, 29, 30, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (WO 99/40634 with U.S. Patent 6,632,538 used as the English translation) in view of JP 01320769 (See also the English abstract), Kinsman (U.S. Patent 4,069,578) and either one of Takeguchi et al. (U.S. Patent 5,116,440) or Hass et al. (U.S. Patent 5,972,140).

Yamazaki et al. disclose a method of forming a gel electrolyte battery comprising forming a positive electrode (e.g. strip-like) made up of a positive active material layer (e.g. containing a lithium compound oxide) and a gel electrolyte, layering the positive electrode with a

positive electrode collector (e.g. a metal foil), forming a negative electrode (e.g. strip-like) made up of a negative active material layer (e.g. containing a material capable of doping/undoping lithium) and a gel electrolyte, layering the negative electrode with a negative electrode collector (e.g. a metal foil), and forming the layered positive electrode and positive electrode collector with the layered negative electrode and negative electrode collector to form a battery device (e.g. longitudinally coiled) separated by a micro-porous separator, accommodating the battery device within a laminated film (e.g. a laminated film including an aluminum film sandwiched between two resin layers), and heating the laminated film to seal the film and form the battery (Figures 1-5 and Column 2, lines 35-67 and Column 3, lines 1-37 and Column 5, lines 46-56). Yamazaki et al. are silent as to charging and discharging the battery device within the laminated film after an initial sealing step but prior to a final sealing step. JP 01320769 discloses a prior art process for sealing an electrolyte battery device within a container to form an electrolyte battery comprising accommodating the battery device within the container, performing a first/initial sealing step of the battery device within the container, performing a step of charging and discharging the battery device, and then performing a second/final sealing step of the battery device within the container the process preventing any gases that form during initial charging and discharging of the battery device from deforming the battery device and/or container or causing electrolyte leakage (See the abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the heat sealing as taught by Yamazaki et al. using two sealing steps and a step of charging and discharging the battery device as shown by JP 01320769 to prevent any gases that form during initial charging and discharging of the battery device from deforming the battery device and/or laminated film or causing electrolyte leakage.

Regarding the limitation of pressing the battery device during the first and second heating steps, Yamazaki et al. and JP 01320769 do not specifically teach pressing the battery device during the first and second heat sealing steps. Kinsman discloses a well known apparatus for heat sealing a battery device wherein the apparatus is a press including an outer heated pressing member for pressing the outer regions of the battery and an inner spring pressing member for pressing the inner regions of the battery (Figure 2 and Column 3, lines 40-61). It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the first and second heat sealing steps taught by Yamazaki et al. as modified by JP 01320769 using a well known heat sealing apparatus for a battery device such as that shown by Kinsman as only the expected results of sealing the battery device within the laminated film would be achieved.

Regarding the limitation of heating and pressuring the battery device during the first and/or second heating steps through a block of heat-resistant rubber, as noted above Kinsman disclosed providing a pressing force to the battery device using a spring. However, Yamazaki et al. specifically note that in providing a pressing force to a battery device it is known to use a spring or elastic member as both were functionally equivalent alternatives for providing a pressing force to a battery device (Column 69, lines 66-67 and Column 70, lines 1-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the inner pressing member taught by Yamazaki et al. as modified by JP 01320769 and Kinsman either of a spring or elastic member as both were well known functionally equivalent alternatives for providing a pressing force to a battery as shown for example by Yamazaki et al. As to a heat-resistant rubber pressing member, Takeguchi et al. and Hass et al. are exemplary of elastic pressing members used in a pressing device wherein the elastic members comprise heat-resistant

silicon rubber (Figure 1A-1C and Column 3, lines 7-15 of Takeguchi et al. and Figure 4 and Column 4, lines 18-32 and Column 6, lines 41-48 of Hass et al.). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the elastic member taught by Yamazaki et al. as modified by JP 01320769 and Kinsman one formed of silicon rubber a well known material for forming pressing members of this type as shown by either one of Takeguchi et al. or Hass et al.

Regarding claims 26 and 27, Kinsman teaches pressing at well known pressures including 490 kPa (Column 3, lines 58-61), and Yamazaki et al. teach the heat seal layers melt at 100 °C (Column 58, lines 54-61). It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the heating sealing and pressing as taught by Yamazaki et al. as modified by JP 01320769 and Kinsman at the suggested pressure of 490 kPa and temperature of 100 °C as only the expected results would be achieved. Furthermore, it would have been obvious to one of ordinary skill in art at the time the invention was made to determine the heat sealing pressure and temperature in Yamazaki et al. as modified by JP 01320769 and Kinsman as a function of the type of materials pressed, the time of pressing, etc. as doing so would have required nothing more than ordinary skill and routine experimentation.

Regarding claim 36, Yamazaki et al. do not specifically teach including additional positive electrodes and negative electrodes on the free side of the positive electrode carrier and negative electrode carrier. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the battery device taught by Yamazaki et al. as modified by JP 01320769 and Kinsman additional positive electrodes and negative electrodes on the free side of the positive electrode carrier and negative electrode carrier as a function of the

amount of battery storage required as doing so would have required nothing more than ordinary skill and routine experimentation.

5. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., JP 01320769, Kinsman, and either one of Takeguchi et al. or Hass et al. as applied to claims 14, 26, 27, 29, 30, and 34-36 above, and further in view of Akashi (U.S. Patent 5,658,686).

Yamazaki et al., JP 01320769, Kinsman, and either one of Takeguchi et al. or Hass et al. as described above teach all of the limitations in claims 31 and 32 except for a specific teaching of the gel electrolyte comprising a matrix polymer of the type claimed, a non-aqueous solvent, and an electrolyte salt the non-aqueous solvent comprising less than 1 wt% of solvent having a boiling temperature below 110 °C. Akashi disclose a fire retardant gel electrolyte used to form a gel electrolyte battery wherein the gel electrolyte comprises a matrix polymer (e.g. polyacrylonitrile, acrylonitrile-butadiene rubber, etc.), a non-aqueous solvent (e.g. propylene carbonate a non-aqueous solvent having a boiling point at 150 °C or higher), and an electrolyte salt (Column 3, lines 28-58 and Column 4, lines 1-19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the gel electrolyte taught by Yamazaki et al. as modified by JP 01320769, Kinsman, and either one of Takeguchi et al. or Hass et al. the gel electrolyte shown by Akashi to form a battery device with excellent fire retardant properties.

6. Claims 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al., JP 01320769, Kinsman, and either one of Takeguchi et al. or Hass et al. as applied to claims 14,

26, 27, 29, 30, and 34-36 above, and further in view of JP 11140209 (See also the English abstract).

Yamazaki et al., JP 01320769, Kinsman, and either one of Takeguchi et al. or Hass et al. as described above teach all of the limitations in claim 33 except for the teaching of the separator formed of a polyolefin. JP 11140209 discloses an electrolyte battery including a porous, polyolefin, high strength separator (See the abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the separator taught by Yamazaki et al. as modified by JP 01320769, Kinsman, and either one of Takeguchi et al. or Hass et al. one formed of polyolefin to form a high strength separator as shown by JP 11140209.

7. Claims 14, 26-32, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatta et al. (U.S. Patent 6,797,430) in view of JP 01320769.

Hatta et al. disclose a method of forming a gel electrolyte battery comprising forming a positive electrode (e.g. strip-like) made up of a positive active material layer (e.g. containing a lithium compound oxide) and a gel electrolyte (e.g. formed from a matrix polymer such as polyacrylonitrile, a non-aqueous solvent such as ethylene carbonate and/or propylene carbonate which are solvents having a boiling point at 150 °C or higher, and an electrolyte salt), layering the positive electrode with a positive electrode collector (e.g. a metal foil), forming a negative electrode (e.g. strip-like) made up of a negative active material layer (e.g. containing a material capable of doping/undoping lithium) and a gel electrolyte (e.g. formed from a matrix polymer such as polyacrylonitrile, a non-aqueous solvent such as ethylene carbonate and/or propylene carbonate having a boiling point at 150 °C or higher, and an electrolyte salt), layering the negative electrode with a negative electrode collector (e.g. a metal foil), and forming the layered

positive electrode and positive electrode collector with the layered negative electrode and negative electrode collector to form a battery device (e.g. coiled), accommodating the battery device within a laminated film (e.g. a laminated film including an aluminum film sandwiched between two resin layers), and applying heat and pressure to the battery device and laminated film through a heat-resistant silicon rubber heated pressing device (30 of Figure 6) to heat seal the laminated film and form the battery (Figures 1-9 and Column 4, lines 1-16 and 30-38 and Column 5, lines 13-50 and Column 6, lines 28-31 and Columns 8-10). Hatta et al. are silent as to charging and discharging the battery device within the laminated film after an initial sealing step but prior to a final sealing step. JP 01320769 is described above in full detail. It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the heat sealing as taught by Hatta et al. using two sealing steps and a step of charging and discharging the battery device as shown by JP 01320769 to prevent any gases that form during initial charging and discharging of the battery device from deforming the battery device and/or laminated film or causing electrolyte leakage.

Regarding claims 26 and 27, Hatta et al. do not specifically disclose the heat sealing pressure and temperature. Absent any unexpected results, it would have been obvious to one of ordinary skill in art at the time the invention was made to experimentally determine the heat sealing pressure and temperature in Hatta et al. as modified by JP 01320769 as a function of the type of materials pressed, the time of pressing, etc. as doing so would have required nothing more than ordinary skill and routine experimentation.

Regarding claim 36, Hatta et al. do not specifically teach including additional positive electrodes and negative electrodes on the free side of the positive electrode carrier and negative

electrode carrier. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the battery device taught by Hatta et al. as modified by JP 01320769 additional positive electrodes and negative electrodes on the free side of the positive electrode carrier and negative electrode carrier as a function of the amount of battery storage required as doing so would have required nothing more than ordinary skill and routine experimentation.

8. Claims 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatta et al. and JP 01320769 as applied to claims 14, 26-32, 34, and 36 above, and further in view of JP 11140209.

Hatta et al. and JP 01320769 as described above teach all of the limitations in claim 33 and 35 except for a teaching of including a porous polyolefin separator. JP 11140209 is described above in full detail. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Hatta et al. as modified by JP 01320769 a porous polyolefin separator as shown by JP 11140209 as only the expected results would be achieved.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 14, 26, 27, and 29-36 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13 and 15-25 of copending Application No. 10/727,467, **now allowed**. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 13 and 15-25 of copending Application No. 10/727,467 fully encompass claims 14, 26, 27, and 29-36 of the instant application.

11. **Regarding the double patenting rejection**, it is noted a restriction was made in the parent application 09/768,093 between three inventions wherein applications 10/727,467 and the instant application 10/727,674 were filed by applicants drawn to the nonelected inventions II and III respectively. Applicants have not amended the claims presented in the instant application (Invention III) to overcome the line of demarcation made in the restriction requirement between the instant application (Invention III) and the parent application (Invention I) such that the claims of the different applications remain consonant with respect to the restriction requirement, and a double patenting rejection of the claims presented in the instant application (Invention III) over the claims in the parent application (Invention I) is prohibited. However, the line of demarcation between the claims presented in the instant application (Invention III) and the claims presented in application no. 10/727,674 (Invention II) as set forth in the restriction requirement was "Invention III requires two heating steps which is not required in Inventions I or II". Applicants amended the claims presented in application no. 10/727,674 (Invention II) to require two heating

steps. **Thus, the claims of the different applications to Inventions II and III are no longer consonant with the restriction requirement as the line of demarcation between the applications does not remain such that a double patenting rejection between the instant application 10/727,674 (Invention III) and application no. 10/727,468 (Invention II) is no longer prohibited (See MPEP 804.01).** As the claims of application no. 10/727,674 (Invention II) have been allowed and the claims of the instant application (Invention III) remain rejected a double patenting rejection of the claims of the instant application (Invention III) over the claims of application no. 10/727,674 (Invention II) is proper (See MPEP 804.01).

Response to Arguments

12. Applicant's arguments with respect to claims 14, 26, 27, and 29-36 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue, "The "pressing device" as intended by Yamazaki et al. is none other than a safety measure disposed in the above hard battery case in order to press the overlap contact part with reliability (*Id.*). Such a pressing device may be a plate spring, a coil spring or an elastic member (See col. 69, line 66 to col. 70, line 13). The function of the pressing device is to allow the overlap contact to be disconnected and interrupt the current when a gas is produced in the polymer battery packet and the pressure in the battery case of the polymer battery packet increases (*See* col. 69, lines 60-65). However, in no way is this "pressing device" part of an apparatus for manufacturing battery devices.".

The pressing device in Yamazaki et al. is noted only in regard to show that in the art of "pressing devices" particularly in conjunction with a battery device the use of a spring, elastic member, etc. as functionally equivalent alternatives is well known.

Applicants further argue, "Similarly, the process disclosed by Takeguchi et al. has nothing to do with the art of the present invention." and "*Hass et al.* also applies to an art unrelated to that of the present application.".

Yamazaki et al. do not specifically disclose what the elastic pressing member is formed from, and both Takeguchi et al. and Hass et al. are cited as evidence that an elastic pressing member as known to one in the art would have been formed of heat-resistant silicone rubber.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(751) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John L. Goff

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